# HUMAN HEALTH

## US EPA Region 9 GPRA Environmental Indicator Signature Page
## RCRA Corrective Action Assessment of ~~CA750~~ 725
## (Current Human Exposures Under Control)

| | |
|---|---|
| **Facility Name** | *Noranda aka Xstrata Recycling* |
| **Facility Address** | *1695 Monterey Highway, San Jose, CA* |
| **U.S. EPA ID#** | *CAD069124717* |

Environmental indicators (EI) are site-wide determinations, based on the remedial work overseen by all agencies. There will be one overall determination for the EI, which considers the portions overseen by each agency. The final determinations for the EI will be NO or IN, if any portion of the site is IN or NO. To get an overall YES determination, all portions of the site must have YES determinations for the EI.

| **Current Human Exposures Under Control** | **Human Health EI determination for remedial activities overseen by:** |
|---|---|
| ■ YES<br>☐ NO<br>☐ IN | ☐ USEPA Region 9<br>■ California Department of Toxic Substances Control (DTSC)<br>☐ California Regional Water Quality Control Board<br>☐ Arizona Department of Environmental Quality<br>☐ Nevada Department of Environmental Protection |

I (we) agree that the factual information I (we) have provided concerning the remedial activities at this facility overseen by the lead regulatory agency identified above, as the basis for this EI assessment, is, to the best of my (our) knowledge, accurate.

**Completed by:**

| **Name(s) (print)** | **Agency** | **Signature And Date** |
|---|---|---|
| *Alejandro Galdamez* | *DTSC* | |
| *Alfred Wong, PE* | *DTSC* | |
| *Rizgar Ghazi, PE* | *DTSC* | Rizgar Ghazi 9/30/11 |

**Supervisor:**

| **Name (print)** | **Title** | **Signature and Date** |
|---|---|---|
| *Mohinder Sandhu, PE* | *Branch Chief* | for Mohinder 9/29/2011 |

# GROUNDWATER

## US EPA Region 9 GPRA Environmental Indicator Signature Page
## RCRA Corrective Action Assessment of CA~~725~~ 750
## (Migration of Contaminated Groundwater Under Control)

| | |
|---|---|
| **Facility Name** | *Noranda aka Xstrata Recycling* |
| **Facility Address** | *1695 Monterey Highway, San Jose, CA* |
| **U.S. EPA ID#** | *CAD069124717* |

Environmental indicators (EI) are site-wide determinations, based on the remedial work overseen by all agencies. There will be one overall determination for the EI, which considers the portions overseen by each agency. The final determinations for the EI will be NO or IN, if any portion of the site is IN or NO. To get an overall YES determination, all portions of the site must have YES determinations for the EI.

| **Migration of Contaminated Groundwater Under Control** | **Groundwater EI determination for remedial activities overseen by:** |
|---|---|
| ■ YES<br>☐ NO<br>☐ IN | ☐ USEPA Region 9<br>■ California Department of Toxic Substances Control (DTSC)<br>☐ California Regional Water Quality Control Board<br>☐ Arizona Department of Environmental Quality<br>☐ Nevada Department of Environmental Protection |

I (we) agree that the factual information I (we) have provided concerning the remedial activities overseen at this facility by the lead regulatory agency identified above, as the basis for this EI assessment, is, to the best of my (our) knowledge, accurate.

**Completed by:**

| **Name(s) (print)** | **Agency** | **Signature And Date** |
|---|---|---|
| *Alejandro Galdamez* | *DTSC* | |
| *Alfred Wong, PE* | *DTSC* | |
| *Rizgar Ghazi, PE* | *DTSC* | Rizgar Ghazi 9/30/11 |

**Supervisor:**

| **Name (print)** | **Title** | **Signature and Date** |
|---|---|---|
| *Mohinder Sandhu, PE* | *Branch Chief* | for Mohinder 9/29/2011 |

Department of Toxic Substances Control, Brown-fields and Environmental Restoration Program
8800 Cal Center Drive, Sacramento, CA 95826

# CONSTRUCTION COMPLETE

## US EPA Region 9 GPRA Measure Signature Page
## RCRA Corrective Action Assessment of CA550
## (Remedy Construction Complete)

| | |
|---|---|
| **Facility Name** | *Noranda aka Xstrata Recycling* |
| **Facility Address** | *1695 Monterey Highway, San Jose, CA* |
| **U.S. EPA ID#** | *CAD069124717* |

To get an overall YES determination for the "Construction Complete" milestone, ALL final remedy decisions and ALL remedy construction necessary for protection of human health and the environment must be made for ALL portions of the site, completely installed and operating according to specifications stated in the remedy decision documents or approved work plans.

| **Remedy Construction Completed (Site-wide)** | **Remedy Construction Complete determination for remedial activities overseen by:** |
|---|---|
| ■ YES<br>☐ NO | ☐ USEPA Region 9<br>■ California Department of Toxic Substances Control (DTSC)<br>☐ California Regional Water Quality Control Board<br>☐ Arizona Department of Environmental Quality<br>☐ Nevada Department of Environmental Protection |

I (we) agree that the factual information I (we) have provided concerning the remedial activities overseen by the lead regulatory agency at this facility, as the basis for this assessment is, to the best of my (our) knowledge, accurate.

**Completed by:**

| **Name(s) (print)** | **Agency** | **Signature And Date** |
|---|---|---|
| *Alejandro Galdamez* | *DTSC* | |
| *Alfred Wong, PE* | *DTSC* | |
| *Rizgar Ghazi, PE* | *DTSC* | 9/30/11 |

**Supervisor:**

| **Name (print)** | **Title** | **Signature and Date** |
|---|---|---|
| *Mohinder Sandhu, PE* | *Branch Chief* | 9/29/2011 for Mohinder |

# CA 550 – REMEDY CONSTRUCTION

Event Code Name: CA550 - REMEDY CONSTRUCTION

Description: The event when the State or EPA acknowledges in writing that the RCRA facility has completed construction of a facility's remedy that was designed to achieve long-term protection of human health and the environment and that the remedy is fully functional as designed, whether or not final cleanup levels or other requirements have been achieved. Remedy construction may also acknowledge the event where no remedy is constructed. This event code applies when: 1) construction of the remedy(ies) have been completed, or 2) the Remedy Decision and Response to Comments or other appropriate decision document indicates that no physical construction of a remedy has been needed since site characterization activities began or no construction is necessary beyond what has been implemented prior to the remedy decision as in the case of stabilization measures. Remedy Construction for comprehensive remedies that address the entire facility (including off-site migration of contaminants) must be linked to the "Entire Facility" area. Phased or partial remedies are to be attached to specific areas of implementation and not to the "Entire Facility" area.

Status Codes: **NR – No Remedy Constructed**; This status code applies on the actual date of the CA400-Remedy Decision if no physical construction of a remedy has been needed since site characterization activities began. **RC - Remedy Constructed**; This status code applies after the actual date of the CA400 - Remedy Decision when either: 1) all necessary physical construction of the last corrective measure has been completed and all remedial systems are fully functional as designed, whether or not final cleanup levels or other requirements have been achieved, or 2) if all necessary physical construction of all remedial systems is fully functional as designed as a result of stabilization measures implemented prior to the actual date of the CA400 - Remedy Decision whether or not final cleanup levels or other requirements have been achieved.

Initiating Sources: 1) State or EPA document(s) (e.g. letter to facility, memorandum to file, etc.) acknowledging the completed construction of the final remedy in accordance with the requirements of permits, administrative orders, other agreements (including modification of existing instruments), or voluntary facility submissions containing equivalent information; or 2) a Remedy Decision and Response to Comments or other appropriate decision document indicating that no further physical construction of a remedy is needed.

Nationally Required: Yes

Scheduled Date: 1) The date the State or EPA is expected to acknowledge, in writing, that any necessary physical construction of the last corrective measure is complete and all remedial systems are fully functional as designed, whether or not final cleanup levels or other requirements have been achieved, or 2) the scheduled date for the remedy decision if no further physical construction of a remedy is expected to be needed.

Actual Date: 1) The date the State or EPA acknowledges, in writing, that any necessary physical construction of the last corrective measure is complete and all remedial systems are fully functional as designed, whether or not final cleanup levels or other requirements have been achieved, or 2) the date for the remedy decision if no further physical construction of a remedy is needed.

Guidance: 1. The Remedy Construction measure is an important milestone of Corrective Action progress designed to measure the progress of remedy implementation. The measure Completion with Controls or Completion Without Controls (CA900 and CA999) will likely be used to indicate the true status of completion at RCRA Corrective Action facilities. 2. Stabilization measures implemented prior to the Remedy Decision should be recorded under CA600 and CA650.

Responsible Agency: EPA or State

**Current Human Exposures Under Control**
**Environmental Indicator (EI) RCRIS code (CA725)**
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**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION**
**RCRA Corrective Action**
**Environmental Indicator (EI) RCRIS code (CA725)**

**Current Human Exposures under Control**

**Facility Name:** *Noranda aka Xstrata Recycling*

**Facility Address:** *1695 Monterey Highway, San Jose, CA*

**Facility EPA ID #:** *CAD069124717*

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

| | |
|---|---|
| *X* | If yes - check here and continue with #2 below. |
| | If no - re-evaluate existing data, or |
| | If data are not available skip to #6 and enter "IN" (more information needed) status code. |

## BACKGROUND

### Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

### Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

### Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, (GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

### Duration / Applicability of EI Determinations

EI Determination status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

| | Yes | No | ? | Rationale / Key Contaminants |
|---|---|---|---|---|
| Groundwater | X | | | *Cr 6+, Cyanide* |
| Air (indoors)[2] | | X | | *None* |
| Surface Soil (e.g., <2 ft) | X | | | *Cr 6+, Cyanide at concentrations above background, selenium, thallium and vanadium* |
| Surface Water | | X | | *None* |
| Sediment | | X | | *None* |
| Subsurf. Soil (e.g., >2 ft) | X | | | *Cr 6+, Cyanide at concentrations above background, selenium, thallium and vanadium* |
| Air (outdoors) | | *NA* | | *NA* |

___ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

*X* If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

___ If unknown (for any media) - skip to #6 and enter "IN" status code.

*Rationale and Reference(s):*

***Regulatory History*** *- Micro Metallics was granted an Interim status Document (ISD) on August 30, 1983 by DTSC. Micro Metallics submitted a notification dated October 10, 1984 to change the ownership as of October 12, 1984 from Micro Metallics Corporation, a subsidiary of Levin Metals Corporation, to Micro Metallics Corporation (a Delaware Corporation), a subsidiary of Noranda Corporation, which is a subsidiary of Noranda, Inc., an Ontario Corporation. Micro Metallics submitted a Permit Application to DTSC on July 3, 1991. DTSC cited major deficiencies to the Permit Application. A revised application was submitted in August 1992. Noranda purchased the assets of Micro Metallics Corporation in October 1984. In the agreement, Levin Metals Corporation, the prior operator of the facility, indemnified Noranda for*

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggests that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

*any, liability stemming from any releases. Environmental Strategies Corporation (ESC) has been managing the corrective action on behalf of the prior operator and property owners. In 2003 Noranda re-organized its US recycling operations under the name Noranda Recycling Inc. noranda changed names to Falconbridge and then to Xstrata Copper Canada following a series of mergers and acquisitions. The Facility and business names were change to Xstrata Recycling Inc. in August of 2007 to conform with the new parent company. The facility at the time of this EI review is operating on a RCRA Permit that expired on October 30, 2004. The permit is in the process of being renewed.*

***Manufacturing Process*** *- The facility is located on approximately 2.2 acres of property in San Jose, California. The Micromet facility is located in an industrial setting and the area surrounding the facility is zoned for industrial use. With the exception of a trailer park located adjacent to and west of the facility, the site is surrounded by manufacturing and commercial properties. The April 7, 1994 draft Negative Declaration, issued by DTSC, concluded that the operations at Micro Metallics facility would have no significant effect on the local population, land use, natural resources, housing, transportation, utilities, or public services.*

*Micro Metallics is a recycling facility that accepts hazardous wastes and secondary materials containing recoverable quantities of base and precious metals. Micro Metallics receives many types of materials delivered as either manifested hazardous waste or un-manifested exempt scrap materials. In both cases, the materials enter the Receiving Area and are inspected to verify classification status, container integrity, compatibility, weight/piece count, labeling and documentation. Most metal recovery operations are performed at an offsite smelter after Micromet has prepared and assayed the materials. Some precious metals are recovered onsite from spent industrial solutions by means of stripping and precipitation including strip baths, plating baths, drag out solutions, and solutions. Other metals, such as lead solder dross, are also processed onsite in furnaces to recover commercially valuable base metals.*

***Permit Authority*** *- RCRA Interim Status was obtained on August 30, 1983. Permit Application was made on July 3, 1991 and revised application was submitted on August 1992. The Regulated Units are currently in operation. There are no current or future redevelopment plans envisaged. An RFA was completed in June 1993. An RFI Report was approved in 1995 and 1996. The CMS Report is entitled Micro Metallics Corporation, San Jose, California, February 6, 1998. The CM Imposed/Statement of Basis process was not required by DTSC.*

***Documented Releases*** *- There was a release of cyanide containing rain water to soil on October 29, 1981(SWMU 8). Approximately 230 cubic yards of soil were removed and taken to the Kettleman Hills TSD in February and March of 1982 under the oversight of RWQCB (File No. 2/89.8112). Seven groundwater monitoring wells were constructed and sampled. Soil and groundwater samples showed only trace amounts of cyanide. The RWQCB closed the case with no further action. The key final site wide soil contamination Report is entitled the CMS, Micro Metallics Corporation, San Jose, California, February 6, 1998. A Soil Risk assessment was conducted and is in the CMS, Micro Metallics Corporation, San Jose, California, February 6, 1998.*

***Current Soil and Groundwater Conditions*** *- In 1995 and 1996, an RFI was conducted at the facility to meet the requirements of the hazardous waste facility permit issued to Micromet by DTSC. During the RFI, metals and cyanide were detected at shallow levels in eleven SWMUs at concentrations above background levels. Consequentially, DTSC requested that Micromet conduct a Corrective Measures Study (CMS) for the site. The bulk of the CMS consisted of a*

*human health risk assessment. The risk assessment included a screening-level risk assessment and a site-specific risk assessment for areas of the site where potential health risks were identified during the screening-level phase. The screening-level risk assessment was conducted using DTSC Preliminary Endangerment Assessment guidance document and indicated that SWMUs 1, 9, 10, 11, 12, and 13 would not pose health risks even in the unlikely event that the site was converted to residential use. A more detailed, site-specific analysis of risks associated with chemical residuals at the other SWMUs (SWMUs 2, 3, 5, 7, and 14) indicated that direct exposure to chemicals of concern by industrial receptors under current site use conditions would not present excessive risks to health. Less conservative estimates of residential exposure parameters indicated that even residential use of the site was unlikely to present excessive risks. Only a single sample containing hexavalent chromium in SWMU-2 exceeded target cancer risks in an unlimited site use scenario. The contaminants of concern were cyanide and metals (Au, Ag, Cu, Pb, and Zn).*

*Contaminants in groundwater were trace amounts of cyanide and metals. There were no groundwater contaminant plumes indentified in the RFI. The gradient direction is northwesterly. There are no groundwater monitoring wells now installed or operating. All seven wells were abandoned by the RWQCB. The depth to the groundwater table is approximately 45 feet bgs. Studies concluded that groundwater is not now contaminated from operations of this facility. There is no groundwater monitoring schedule currently required. A groundwater risk assessment is included in the CMS, Micro Metallics Corporation, San Jose, California, February 6, 1998. The last Groundwater Monitoring Report is dated August 12, 1991 and there is no groundwater remedy required. There is no Land Use Covenant in place. As such, it is deemed that this operating RCRA TSD has met the Remedy Construction Complete Environmental Indicator.*

***Surface Water** - The Micromet facility is located between the Guadalupe River and Coyote Creek drainage courses that flow northwest and discharge into the southern reaches of the San Francisco Bay. The Guadalupe River is located approximately 0.9 mile southwest of the site, Coyote Creek is approximately 1.1 miles northeast of the site, and San Francisco Bay is approximately 11.6 miles northwest of the site. The Micromet facility is located within a l00-year floodplain.*

***Geology and Hydrogeology** - Micromet is located in the southeastern margin of the forebay hydro-stratigraphic unit in the Santa Clara Valley Groundwater Basin. Basin sediments consist of relatively young (Pleistocene to Recent) unconsolidated alluvial deposits (clay, silt, sand, and gravel) underlain at depth by the older (Plio-Pleistocene) poorly consolidated to consolidated alluvial deposits of the Santa Clara Formation. The thickness of the alluvium increases away from the bounding mountainous areas toward the center of the valley. In this area, groundwater flows under unconfined water conditions through coarse aquifer materials (sand and gravel). The saturated sand and gravel deposits are separated by discontinuous leaky aquitards consisting predominately of fine silt and clay sediments. The presence of silt and clay layers in the unsaturated zone may contribute to the formation of temporary perched water horizons during periods of high surficial recharge. The subsurface materials at the site have been divided into three zones. Zone A extends to a depth of approximately 50 feet below the ground surface and is composed of clay and silty clay with occasional lenses of silt, silty sand, and sand. Zone A is a poor water-bearing layer and may represent a former perched water horizon. Zone B extends from 50 to 75 feet below the ground surface, consisting of sand and sandy gravel, and representing the primary shallow water-bearing unit. Zone C extends from 75 to 105 feet below*

*the ground surface and consists of clayey gravel and sand. The depth to shallowest groundwater in Zone A is approximately 30 feet. Not enough wells were installed in the deeper zones to determine the groundwater flow direction in these units.*

***Summary of the RCRA Facility Assessment, Micro Metallics Corporation, 1695 Monterey Highway San Jose, California, Department of Toxic Substances Control, Region 2, Berkeley, June 1993.***

*A Visual site Inspection (VSI) was conducted on March 12, 1993. Fifteen SWMUs and one AOC were identified during the RFA at the site. Twelve of these SWMUs and one AOC had been closed and/or relocated. Individual Closure Plans were not submitted for the following: SWMUs 1 through 3; and SWMUs No. 5, 7(A&B), 9, 10, 11, 12, 13, 14, and AOC-I. These units were recommended for further characterization in an RFI. No further investigation was recommended for SWMUs No. 4, 6, and 8, that were determined to have no or low potential for releases into the, sub-soils or groundwater.*

*ABOVE GROUND STORAGE AND/OR TREATMENT TANKS*

***SWMU 1** - Former site of six (6) cyanide processing tanks - A total of thirteen cyanide process tanks had been located in the cyanide stripping Room. Currently there are only seven tanks in this room. The Stripping Room operation was established in the early 1970's. The exact location of the removed tanks was not available. The approximate locations of these tanks are determined by the existing relative blanked off branches of the ventilation system ducts of the stripping room. The six removed cyanide processing tanks are believed to be similar in construction to the existing tanks in operation. The construction materials were polyethylene and/or fiberglass. The capacities of the tanks ranged from 40 gallons to 450 gallons. Cyanide solutions are similar to the wastes currently managed. The solutions typically have a pH of 11 to 14, and a cyanide content of 10,000 to 30,000 ppm. Major metals include copper, silver, zinc, nickel and lead.*

***SWMU 2** - This is the former site of four (4) above ground waste tanks. A total of eight cyanide waste tanks were located at this site. Currently there are only four tanks. Two tanks were removed in 1982. The other two tanks were removed in 1986. The containment structure currently in use, was renovated and was built on the site of the removed tanks. The capacity of the two tanks that were removed in 1982, are estimated to be 3,000 and 7,500 gallons respectively. The other two tanks which were removed in 1986, are a match set to the existing cyanide waste tanks currently in use, and have a capacity of 1,900 gallons each. Major metals include copper, silver, zinc, nickel, and lead. The waste solutions are regulated as RCRA waste. Outgoing waste solutions were transported to an offsite facility for treatment and/or disposal.*

***SWMU 3** - This is the former site of above ground acid waste tank in the acid waste tank farm. Currently there is only one above ground acid waste tank having a capacity of 2500 gallons. This tank replaced the old one, and was built on the same site. The capacity of the old tank was approximately 5000 gallons. This tank was removed in 1984. The current containment structure and the existing tank were built and installed just after removing the old tank. Acid and neutral aqueous wastes are similar to the wastes currently managed. The waste solutions are regulated as RCRA wastes. Outgoing waste solutions were transported to an offsite facility for treatment and/or disposal.*

*CONTAINER STORAGE AREAS*

***SWMU 4** - This is the former site of discontinued scrap metal storage. Portions of the yard and*

*parts of the processing area were used prior to 1987 to store scrap metals. Ferrous and non-ferrous scrap metals were stored in the yard and in various locations throughout the facility, due to the inert characteristics of scrap metals. Large portions of the yard were unpaved. Scrap metals including plates, bars, anodes, turnings and punchings, also various types of containers including pallets, boxes, drums and bags were stored prior to 1987 in different areas of the facility. Scrap metals are defined as solid wastes.*

***SWMU 5** - This is the former site of discontinued cyanide and acid wastes storage in the yard located in portions of the yard. During the 70's, the storage of cyanide sludge and acid wastes took place in different undesignated areas of the yard and in the waste processing area. At one time, up to 300 drums of cyanide wastes were stored in the yard near the current location of the propane tank. As noted in the inspection conducted by DTSC in October, 1987 cyanide waste and acid wastes were identified at other locations outside of the designated storage areas. Cyanide wastes and acid wastes used to be stored in drums and/or containers in different areas. Waste cyanide sludges and acid wastes similar to solutions currently used were being handled. The wastes are currently regulated as RCRA wastes. Incoming wastes were treated onsite. Outgoing waste solutions were transported to an offsite facility for treatment and/or disposal.*

***SWMU 6** - This is the former site of discontinued metal-bearing solids and sludge storage located in portions of the warehouse. Containerized acid wastes were stored in the warehouse in 1984 and 1985 during the interim period between removal of the 5000 gallon storage tank and installation of the current system. The warehouse has a concrete base and is enclosed by a roof and walls. The total area of the warehouse is approximately 14,000 square feet. No waste treatment took place in these units. Wastes received by Micro Metallics such as cyanide solutions, sludge and dross were held awaiting treatment at other locations onsite. Outgoing waste acid solutions awaiting shipment to an offsite TSDF were also stored in the warehouse. The wastes are currently regulated as RCRA hazardous waste.*

***SWMU 7A** - This is the former site of waste oil storage at the dismantled maintenance shed located in the area between the cyanide waste tank farm and tray furnaces. This area was a part of the outside cyanide processing operation which was discontinued. Unauthorized storage of waste oil was identified during an inspection conducted by DTSC in October 1987. This area had a concrete floor and a shed structure for a roof. The structure was dismantled in 1988. Containers of waste oil are regulated as a California hazardous waste.*

***SWMU 7B** - This is the former site of the discontinued outside cyanide stripping and electroplating process located in the area between the cyanide waste tank and tray furnaces. A cyanide stripping and electroplating operation was previously located in an area between the cyanide tank farm and tray furnace processing area. Cyanide processing in the yard area was discontinued in the early 1980s. Seven wells were installed between 1982 and 1986 to determine the extent of contamination. An additional monitoring well was installed in the spill area in August 1991. Soil samples were collected at three feet, five feet, and at subsequent five foot intervals to a depth of 75 feet. In addition, groundwater samples were collected from the new monitoring well and from three existing monitoring wells. The soil and groundwater samples were analyzed for free and total cyanide. The results of the soil sampling indicated that the soils where the spill occurred, contained trace levels of total cyanide and at those very low levels did not pose a threat to the groundwater quality in the area.*

***SWMU 9** - This is the former site of the discontinued electrolytic waste recycling operation that*

*was located in the physical processing area. An electrolytic waste recycling operation was previously located in what is now the dry processing area of the plant. Solution processing in this area was discontinued in the early 1980s and was replaced by the operations inside the refining areas at the facility. Metals were electrolytically recovered in two rectangular tanks. The tanks held approximately 200 gallons each. Drummed waste awaiting processing for offsite disposal was stored in the immediate area of the tanks. The area has a concrete base. Photographic solutions were the predominant wastes processed in this area. No waste disposal took place in the units. Spent solutions and rinse waters were stored in drums or waste storage tanks and sent to an offsite TSDF.*

***SWMU 10*** *- This was the former site of the discontinued electrolytic silver refining operation (Silver Cells) that was located in the Acid storage room, in the existing refining building. An electrolytic silver refining operation was located in an area previously identified as the Silver Room in the refining area of the facility. This operation did not involve solid waste management units. However, the process cells were tan- like and the operation generated hazardous acid waste. The processing cells were removed in 1984 or 1985, and the area is now in use for storage. A stainless steel kettle was used to mix nitric acid solutions for use as an electrolyte. The kettle had a capacity of approximately 30 gallons. As many as nine electrolytic recovery cells were in use in the area. The cells were approximately 2 ft. x 2.5 ft. x 5 ft. each. The process cells typically held 15 to 20 gallons of electrolyte. Spent acid was stored in a waste acid tank in the yard area prior to disposal at an offsite facility.*

***SWMU 11*** *- This is the former site of crucible furnaces E & F. A total of six crucible furnaces were located on this site. Currently there are only four, A through D. A fifth and sixth furnace, identified as the "E" and "F" furnaces, were removed from the Crucible Furnace Area. The "E" and "F" crucible furnaces which were removed from service were of construction similar to the crucible furnaces currently in use at Micro Metallics. Each furnace consists of a steel shell lined with a refractory material, and a refractory crucible into which the material to be treated is placed. The furnaces are gas fired and waste material is melted in batches. The "E" and "F" crucible furnaces had a capacity of approximately 200 lbs each. All of the materials processed in the furnaces would be expected to contain hazardous metals.*

***SWMU 14*** *- This was the discontinued process sump, which was previously used to collect run-off from the yard area where the outside cyanide stripping process was located behind the tray furnace baghouse. A storm water sump was used to collect run-off from the yard area north of the tray furnace area and outdoor cyanide operation. The tray furnace operation remains in service but has since been covered with a roof. The outdoor cyanide operation was discontinued in the early 1980s as discussed above. The sump holds approximately 700 gallons and has dimensions of 4 ft. x 4 ft. x 6 ft. The sump is concrete and is located behind the Tray Furnace Processing Area on the northern boundary of the facility. The water collected in the sump was water containing some cyanide, copper, silver, nickel, lead, and other metals. The wastewater was presumed to contain regulated levels of cyanides and metals due to the nature of the operations in the area drained. No waste disposal took place in the unit(s). The water collected in the unit was placed in the cyanide waste storage tanks and sent to an offsite TSDF.*

***AOC 1*** *- This was the former site of discontinued reagent grade acids (hydrochloric and nitric) storage tanks located in the acid storage room in the refining building. In 1970, Micro Metallics had contracted with an acid distributor to supply hydrochloric and nitric acids for their operations. The supplier provided two tanks for storage at the site, as part of the service. This*

*service was discontinued in September 1992. Currently, acid reagents are purchased and stored in containers up to 55 gallons in the refining building. The two tanks were horizontally mounted on steel supports inside a coated concrete berm, inside the existing acid storage room. The hydrochloric acid storage tank was rubber lined steel tank having a capacity of 225 gallons. The nitric acid storage tank was cylindrical stainless steel tank having a capacity of 225 gallons. The tanker truck used to pump reagent acids into the storage tanks at the facility was also provided by the acid distributor. Reagent grade hydrochloric and nitric acids were handled.*

***RFA Conclusions*** *- The entire site was either enclosed within a building or partially covered with a steel structure and paved with asphalt and concrete. The storage yards and the loading/unloading areas are also paved with concrete or asphalt. The indoor floors are well maintained with no cracks or open drains. There were low or no potential for releases to the sub-soils from the operations because the storage and processing activities are conducted inside the building.*

***RFA Recommendations*** *- Twelve of these SWMUs and one AOC had been closed and/or relocated. SWMUs Nos. 1 through 3, and SWMUs Nos. 5, 7 (A&B), 9, 10, 11, 12, 13, 14 and their partial closures were conducted without DTSC approved closure plans. No further investigation was recommended for SWMUs Nos. 4, 6, 8 which were determined to have no or low potential for releases into the sub-soils or groundwater.*

***Summary of the Corrective Measures Study Report Micro Metallics Corporation San Jose, California, Environmental Strategies Corporation, February 6, 1998***

***Summary of Pre-RFI Investigations*** *- The only pre-RFI environmental data is associated with the remediation of soil affected by rainwater containing cyanide in October 1981. This event and the subsequent investigation and remediation were identified as SWMU-8 by DTSC. The complete summary of the soil and groundwater sampling results for the spill area were presented in the September 30, 1991, report titled "Supplemental Site Investigation for Micro Metallics". Based on the data presented in the 1991 report, no further action for SWMU-8 was required by DTSC, and SWMU-8 (along with SWMU-4 and SWMU-6) was excluded from the HRA.*

***Summary of the RFI*** *- The RFI was conducted in June 1995 and June 1996 to meet the requirements of the hazardous waste facility permit issued to Micromet by DTSC. The RFI involved the collection and analysis of shallow soil samples (maximum depth of seven feet) from 11 SWMUs and one AOC at the site. Background soil samples were also collected from onsite and offsite locations. The samples were analyzed for California Assessment Manual (CAM) metals, cyanide, and pH. Selected samples were also analyzed for hexavalent chromium. Three samples from SWMU-7 were analyzed for total petroleum hydrocarbons (TPH) as gasoline and diesel. No TPH was detected in any of the samples collected from SWMU-7.*

*Data Evaluation Criteria For metals (except chromium VI) and cyanide, a screening process was developed to systematically evaluate the sampling results from each SWMU and the AOC. Soil screening levels were derived using a statistical analysis of a set of background samples. The background data set consisted of two background samples collected during the initial RFI. Twenty supplemental background samples were collected on the Micromet property and 17 background samples from the investigation of the nearby Lorentz Barrel and Drum site. For each constituent of concern, the mean and standard deviation were calculated. Background screening levels were then calculated by adding two times the sample standard deviation to the mean concentration for each constituent. Background screening level refers to the clean*

*background concentration plus two sample standard deviations. The background samples were not analyzed for chromium VI. However, for the CMS, chromium VI was assumed that the background concentration of zero, hence, any detectable level of chromium VI was considered significant. No SWMU or AOC samples exhibited a pH less than 7.3.*

***SWMU 1** - Only two constituents, cyanide (1.7 mg/kg) and silver (6.5 mg/kg) were detected at levels exceeding background screening levels. No samples from this area had a pH greater than 8.5.*

***SWMU 2** - Former Site of Four Aboveground Waste Tanks - Two borings (A and B) were drilled in this area adjacent to the western wall of the existing containment structure and within the former containment pad for the removed tanks. Eight metals and cyanide were detected at concentrations above background screening levels in one or more samples from this SWMU: cadmium (7.5 mg/kg), chromium (1,190 mg/kg), cobalt (171.1 mg/kg), copper (135 mg/kg), cyanide (33.1 mg/kg), molybdenum (31.8 mg/kg), nickel (320 mg/kg), silver (5.3 mg/kg), and zinc (1,870 mg/kg). Chromium VI was detected at a maximum concentration of 126 mg/kg.*

***SWMU 3** - Former Site of an Old Acid Waste Tank - Background screening levels for the following metals were exceeded in one or more samples from this area: barium (538 mglkg), cadmium (10.3 mglkg), chromium (526 mglkg), cobalt (53.9 mglkg), copper (544 mglkg), nickel (1,190 mglkg), selenium (2.7 mglkg), silver (4.5mglkg), thallium (2.5 mglkg), and vanadium (115 mglkg). No pH values were measured above 8.5 in any of the samples.*

***SWMU 5** - Former Site of Discontinued Cyanide and Acid Wastes Storage in the Yard - Three borings, A, B, and C were installed in this former drum storage area. Cadmium (47.6 mglkg), chromium (278 mglkg), copper (1,640 mglkg), cyanide (63.8 mglkg), mercury (3.6 mglkg), molybdenum (5.2 mglkg), silver (161 mglkg), and zinc (937 mglkg) were detected at concentrations exceeding background screening levels in one or more samples from this unit. Chromium VI was detected in one sample at a concentration of 0.38 mglkg.*

***SWMUs 7A and 7B** - Former Site of Waste Oil Storage at the Dismantled Maintenance Shed and Former site of Discontinued Cyanide Stripping Process - Three borings were taken from this area (A, B, and C). Samples from all three borings were used to evaluate possible releases from petroleum storage and cyanide stripping operations. Potential petroleum releases associated with SWMU 7 A were evaluated by analyzing the 2.0 to 2.5 foot depth sample from each boring (A, B, and C) for TPH as gasoline and diesel. There was no visible evidence of contaminants and no TPH was detected in any of the samples. Therefore, there was no indication of any releases related to oil storage in SWMU 7. Antimony (8.8 mg/kg), barium (665 mg/kg), cadmium (20.2 mg/kg) , chromium (214 mg/kg), copper (767 mg/kg), cyanide (28.5 mg/kg), mercury (1.4 mg/kg), molybdenum (13.8 mg/kg), and silver (329 mg/kg) were detected at concentrations exceeding background screening levels in one or more samples from SWMU 7A and SWMU 7B. Chromium VI was detected in one sample at a concentration of 0.2 mg/kg.*

***SWMU 9** - Former Site of the Discontinued Electrolytic Waste Recycling Operation - Two borings were drilled in this SWMU, one each in the eastern (A) and western (B) sides of this area. Barium (677 mg/kg), cadmium (4.9 mg/kg), cobalt (37.7 mg/kg) , and vanadium (93.2 mg/kg) were detected at levels exceeding background concentrations in one or more samples from this unit. No pH value above 8.5 was measured in any of the samples.*

***SWMU 10** - Former Site of the Discontinued Electrolytic Silver Refining Operation - SWMU 10,*

*a former electrolytic silver refining operation, was previously located in the current Acid Waste Storage Room Solutions containing acids and metals that were used in this operation. Copper (100 mg/kg) was detected at a concentration exceeding its background screening level in one sample from SWMU 10. No pH value above 8.5 was measured in any of the samples.*

***SWMU 11*** *- Former Site of Crucible Furnaces Number "E" & "F" in Crucible Furnaces Area - One boring (A) was drilled at this location, directly beneath the former crucible furnace locations. One sample contained cadmium (4.8 mg/kg), cobalt (35.9 mg/kg), and vanadium (87.8 mg/kg) at concentrations above the background screening levels.*

***SWMU 12*** *- Former Site of Sludge Dryer - One boring (A) was drilled at this location, beneath a sealed vent pipe that was formerly connected to the sludge dryer. Cadmium (9 mg/kg), cobalt (31.4 mg/kg), mercury (1.7 mg/kg) and molybdenum (2.4 mg/kg) were detected in one sample at concentrations exceeding background screening levels.*

***SWMU 13*** *- Former Site of Two crucible Furnaces - One boring (A) was drilled in the office beneath the former furnace location. Silver (2.9 mg/kg) was detected at a concentration exceeding its background screening level in one sample from SWMU 13.*

***SWMU 14*** *- Discontinued Process Sump - One boring (A) was taken immediately adjacent to the sump because the sump itself was inaccessible for coring and sampling equipment. Samples used to evaluate this SWMU were collected from four to six feet in depth rather than from the surface, because scenarios for a release from this SWMU could include leakage from the sides or bottom of the sump. Barium (611 mg/kg), cadmium (4.4 mg/kg), copper (456 mg/kg), cyanide (13.2 mg/kg), silver (101 mg/kg) and thallium (3.0 mg/kg) were detected in one or more samples at concentrations above background screening levels.*

***AOC 1*** *- Former Site of Discontinued Reagent Grade Acid Storage Tanks - One boring (A) was drilled at this location. No constituents were detected at concentrations exceeding background screening levels in the sample collected in this area.*

***Exposure of Chemicals to Soil Media*** *- The RFI soil sampling results indicated that 11 SWMUs at the Micromet facility contain metals or cyanide at concentrations above background levels including: selenium, thallium and vanadium in SWMU 3, and chromium VI. The Micromet facility is located in an industrial setting and the area surrounding the facility is zoned for industrial use. As indicated in the draft Negative Declaration prepared for Micromet by DTSC, the City of San Jose reports that the facility is consistent with the existing zoning. With the exception of a trailer park located adjacent to and west of the facility, the site is surrounded by manufacturing and commercial properties. Site access is limited by a chain-link fence that surrounds the site. Because facility operations involve, in part, the recovery of precious metals such as gold, strict security measures are followed to prevent unauthorized access to the facility. Consequently, contact with site soil by trespassers is unlikely. Contact with chemicals in site soil is also unlikely for onsite workers, because these soils are covered by buildings and/or pavement. Under these conditions, contact with chemicals in soil could occur only if activities exposing subsurface soil (e.g., utility installation) area performed, or if any future site use required removal of existing structures.*

***Exposure of Chemicals to Groundwater Media*** *- Based on Santa Clara Valley Water District (SCVWD) records, 36 groundwater supply wells are located within a one-mile radius of Micromet facility. The wells are used to supply industrial process water, irrigation water, and drinking water. According to the SCVWD, all active water wells in the area are screened at a*

*depth of 150 feet or greater. Concentrations of chemicals in soil at the Micromet facility attenuate rapidly with depth. The site is paved with a concrete slab and asphalt, which limits the potential for rainwater to infiltrate soil, contact chemicals in soil, and leach chemicals to groundwater. Groundwater at the site is first encountered at a depth of 30 feet below ground surface, but water wells are screened at depths exceeding 150 feet. In order to impact usable groundwater supplies, chemicals would have to migrate from shallow soil through shallow aquifers to much deeper water-bearing units, and migrate laterally to existing wells. The potential for chemical migration to occur in leachate and groundwater is limited by the presence of buildings and/or pavement at the site. The potential for exposure to chemicals in groundwater is not likely under current conditions.*

***Exposure of Chemicals to Surface Water Media*** *- Micromet is located within a 100-year floodplain in the Santa Clara Valley. According to the SCVWD, a 100-year flood would peak at an elevation of approximately 104 feet above mean sea level (msl). Because the facility is located at an elevation of approximately 110 feet above msl, the risk of flooding at the site is considered minor.*

***Ecological Exposure*** *- There are no sensitive habitats within one mile of Micromet facility and no unique, rare, or endangered species exist at or near the site. Fencing surrounds the entire facility, preventing animals from entering the facility. Site chemicals are not expected to migrate to surface water bodies, and therefore, the site is unlikely to adversely affect aquatic organisms. The site is considered unlikely to pose a risk to the local ecosystem.*

***Summary and Conclusions*** *- SWMUs 1, 9, 10, 11, 12, and 13 would not pose significant health risks even in the unlikely event that the site were converted for residential use. The screening-level risk assessment did show that a potential for health-based risks was possible on an approximately 0.5 acre portion of the site around SWMUs 2, 3, 5, 7 and 14. A more detailed analysis of risks associated with chemical residuals at SWMUs 2, 3, 5, 7, and 14, was performed. Potential exposure and risks estimated for utility and construction workers are insignificant. Only hypothetical exposure to chromium VI in a single sample at maximum concentration from SWMU-2 posed a theoretical risk (2E-06) that was above the target risk level of 1E-06. A reevaluation of residential risks by evaluating the non-cancer toxicity endpoints of the chemicals of concern indicated that direct contact exposure by residential receptors was also unlikely to be a concern at these SWMUs. Additional analysis of the potential for risks associated with inhalation exposure at the site under a residential use scenario also indicated that risks are below target residential risk levels for inhalation. Only chromium VI in the single sample at maximum concentration from SWMU-2 presented an excess cancer risk. Other samples from this SWMU had considerably lower chromium VI concentrations.*

*The location of the residual chemicals (metals and cyanide) at the Micromet site are in soil beneath asphalt pavement or concrete building slabs that prevent exposure to these materials under current and future conditions. Only one isolated sampling location in SWMU 2 consistently presented hypothetical risks to human health, assuming that subsurface soil underneath pavement could be exposed and regularly contacted. Consequently, remedial action was deemed not warranted for the site because there are no near term risks to human health under current site conditions. Institutional and engineering controls will limit contact with subsurface soils and further ensure that the conditions at the site do not present risks to human health. None of the constituents identified during the RFI were detected at levels exceeding the*

*Total Threshold Limit Concentration (TTLC) values. Each SWMU at the site is covered by a building or asphalt, hence, the soils at the site are effectively capped under present conditions. By maintaining the existing conditions at the site, a single-layer cap eliminates potential exposure to chemicals in soils beneath the site.*

**Environmental Indicator Status**

| | *HH* | *GW* | *RCC* |
|---|---|---|---|
| *EIs Projected* | *9/30/2011* | *9/30/2011* | *9/30/2011* |

*REFERENCES*

*California Environmental Protection Agency Department of Toxic Substances Control, 1993, RCRA Facility Assessment for the Micro Metallics Corporation, San Jose, CA.*

*California Environmental Protection Agency, 1994, Preliminary Endangerment Assessment, Guidance Manual, Department of Toxic Substance Control.*

*Elonsco Services, 1990, Remedial Investigation Report for the Lorentz Barrel and Drum Site.*

*Environmental Strategies Corporation (ESC), 1991, Supplemental Site Investigation for Micromet, San Jose, CA.*

*Environmental Strategies Corporation (ESC), 1995, RCRA Facility Investigation Report for the Micromet Facility, San Jose, CA.*

*Department of Toxic Substances Control, 1993, RCRA Facility Assessment for the Micro Metallics Corporation, San Jose, CA.*

*California Environmental Protection Agency, 1994, Preliminary Endangerment Assessment, Guidance Manual Department of Toxic Substance Control.*

*Environmental Protection Agency (EPA), 1979, Water-Related Environmental Fate of 129 Priority Pollutants, EPA 44O-4-79-029a.*

*Environmental Protection Agency (EPA), 1985. Chemical, Physical and Biological Properties of Compounds Present at Hazardous Waste Sites, Prepared by Clement Associates for Office of Waste Program Enforcement, Washington, D.C., September (1985).*

*Environmental Protection Agency (EPA), 1986, Guidelines for the Health Risk Assessment of Chemical Mixtures, Fed. Reg. 51: 34013-34023 (1986).*

*Environmental Protection Agency (EPA), 1992, Dermal Exposure Assessment: Principles and Applications (Interim Final), Office of Research and Development, Washington, D.C. January 1992, EPN600/8-91/011B.*

*Environmental Protection Agency (EPA), 1996, Soil Screening Guidance: Technical Background Document, Office of Solid Waste and Emergency Response.*

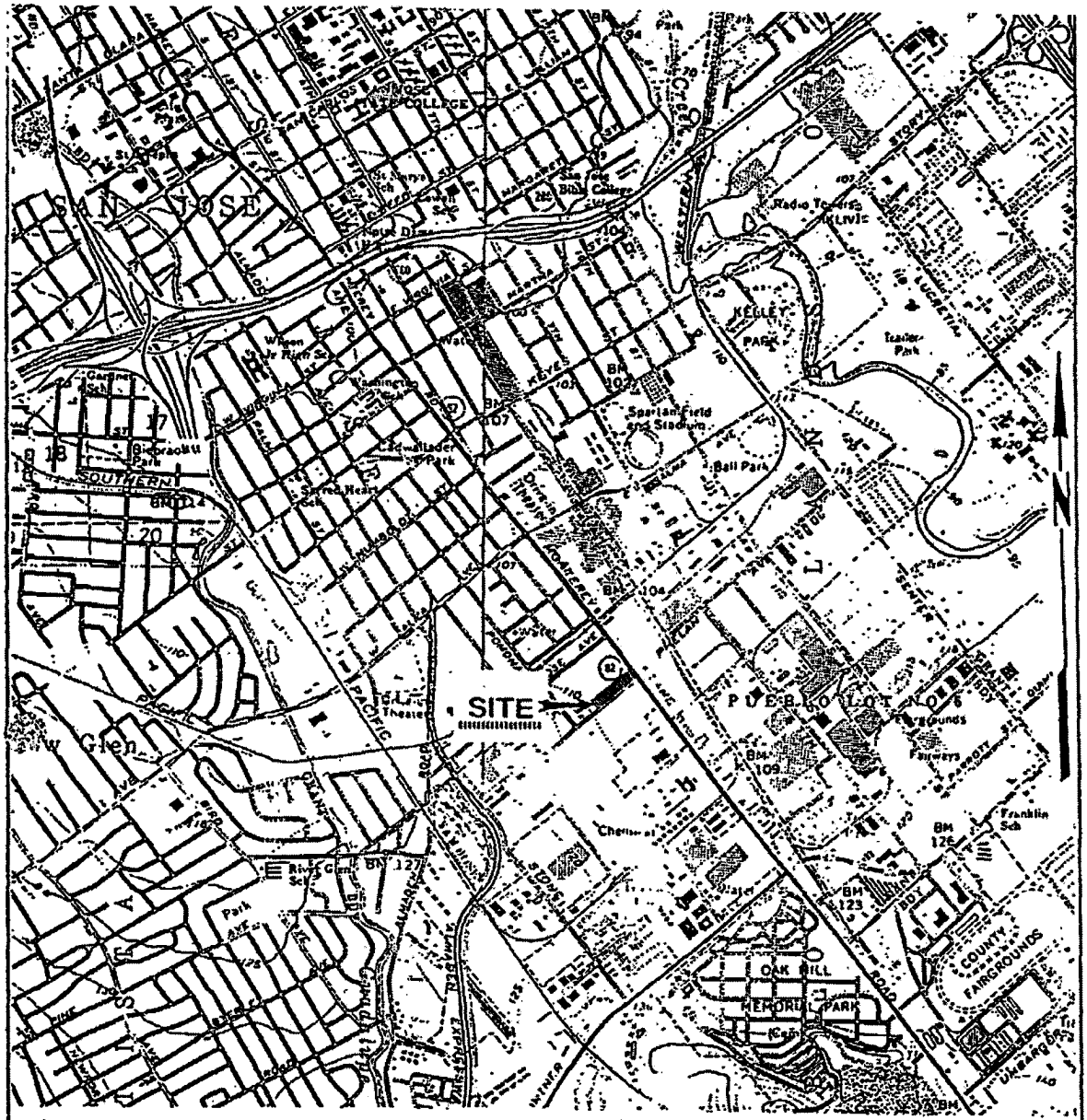
*Environmental Strategies Corporation (ESC), 1991, Supplemental Site Investigation for Micromet, San Jose, CA.*

*Environmental Strategies Corporation (ESC), 1995, RCRA Facility Investigation Report for the Micromet Facility, San Jose, CA.*

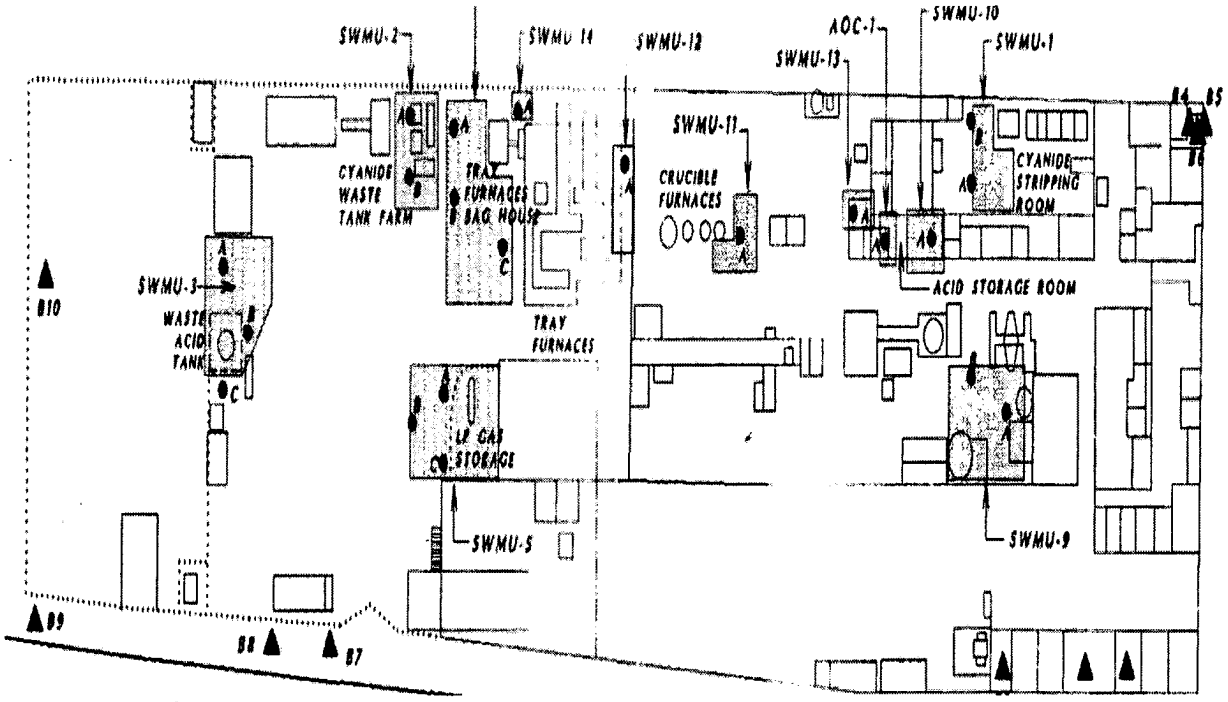
*Environmental Strategies Corporation (ESC), 1997, Corrective Measures Study Workplan for the Micromet Facility, San Jose, CA.*

*RCRA Facility Assessment, Micro Metallics Corporation, 1695 Monterey Highway San Jose, California, Department of Toxic Substances Control, Region 2, Berkeley, June 1993.*

*Corrective Measures Study Report Micro Metallics Corporation San Jose, California, Environmental Strategies Corporation, February 6, 1998*


SAN JOSE
SITE
SOUTHERN
PACIFIC
Spartan Field and Stadium
Ball Park
KELLEY PARK
Leland Park
Franklin Sch
COUNTY FAIRGROUNDS
OAK HILL MEMORIAL PARK
PUEBLO LOT
Golf Grounds
Fairways
Radio Towers (Live)
Source: U.S.G.S. 7.5 Minute
San Jose East and
San Jose West, CA Quadrangles
1961, photo revised 1980
Scale: 1"=2,000'
ENVIRONMENTAL STRATEGIES CORPORATION

## *Facility Location*




*Facility Layout and SWMU Locations*

3. Are there complete pathways between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

| "Contaminated" Media | Residents | Workers | Day-Care | Construction | Trespassers | Recreation | Food[3] |
|---|---|---|---|---|---|---|---|
| Groundwater | *No* | *No* | *No* | *No* | | | *No* |
| Air (indoors) | *No* | *No* | *No* | | | | |
| Soil (surface, e.g., <2 ft) | *No* | *No* | *No* | *No* | *No* | *No* | *No* |
| Surface Water | *NA* | *NA* | | | *NA* | *NA* | *NA* |
| Sediment | *NA* | *NA* | | | *NA* | *NA* | *NA* |
| Soil (subsurface e.g., >2 ft) | | | | *No* | | | *No* |
| Air (outdoors) | *NA* | *NA* | *NA* | *NA* | *NA* | | |

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.
2. Enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations, they may be possible in some settings and should be added as necessary.

| | |
|---|---|
| *X* | If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways). |
| | If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation. |
| | If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code. |

Rationale and Reference(s):

*There was a release of Cyanide containing rain water to soil on October 29, 1981(SWMU 8). Approximately 230 cubic yards of soil were removed and taken to the Kettleman Hills TSD in February and March of 1982 under the oversight of RWQCB. Seven ground water monitoring wells were constructed and sampled. Soil and ground water samples showed only trace amounts of Cyanide. The RWQCB closed the case with no further action. Contaminants in ground water were trace amounts of Cyanide and metals. The RWQCB could not identify a ground water contaminant plume during the ground water investigation. The gradient direction was determined to be in the northwesterly direction. There are currently no monitoring wells in current network. All seven previously constructed ground water monitoring wells were abandoned by the RWQCB. The ground water table depth is approximately 45 feet bgs. Ground*

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

*water is not now contaminated from operations of this facility. A ground water risk assessment is contained in the CMS, Micro Metallics Corporation, San Jose, California, February 6, 1998. The last ground water monitoring report was dated August 12, 1991. No additional ground water remedy was required by DTSC or the RWQCB. No land use covenant was required.*

*DTSC requested that Micromet conduct a Corrective Measures Study (CMS) for the site. That document, included a screening-level risk assessment and a site-specific risk assessment for areas of the site where potential health risks were identified during the screening-level phase. The screening-level risk assessment was conducted using simplified equations included in the DTSC Preliminary Endangerment Assessment (PEA) guidance document and indicated that SWMUs 1, 9, 10, 11, 12, and 13 would not pose health risks even in the unlikely event that the site was converted to residential use. A more detailed, site-specific analysis of risks associated with chemical residuals at the other SWMUs (SWMUs 2, 3, 5, 7, and 14) indicated that direct exposure to chemicals of concern by industrial receptors under current site use conditions will not present excessive risks to health. In addition, less conservative estimates of residential exposure parameters indicates that even residential use of the site is unlikely to present excessive risks. Only a single sample containing hexavalent chromium (chromium VI) in SWMU-2 exceeds target cancer risks in an unlimited site use scenario.*

*There are no unacceptable exposure pathways at this site including the Indoor Air Pathway.*

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

| | |
|---|---|
| | If no (exposures cannot be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant." |
| | If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant." |
| | If unknown (for any complete pathway) - skip to #6 and enter "IN" status code |

Rationale and Reference(s):

*Please see explanation in previous Human Health Question 3.*

References

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

| | |
|---|---|
| | If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment). |
| | If no (there are current exposures that can be reasonably expected to be "unacceptable") - continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure. |
| | If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code |

Rationale and Reference(s):

References

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

| | |
|---|---|
| X | YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at ***the Noranda aka Xstrata Recycling, 1695 Monterey Highway, San Jose, CAD069124717,*** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility. |
| | NO - "Current Human Exposures" are NOT "Under Control." |
| | IN - More information is needed to make a determination. |

| Contact Information | | | |
|---|---|---|---|
| Prepared by | *Frank Dellechaie* | (916) 255-6425 | FDellechaie@sbcglobal.net |
| Reviewed by | *Alejandro Galdamez,Project Manager* | (510) 725-5634 | AGaldame@dtsc.ca.gov |
| Reviewed by | *Alfred Wong, PE, Team Leader* | (510) 540-3946 | AWong@dtsc.ca.gov |
| Reviewed by | *Rizgar Ghazi, PE, Unit Chief* | (916) 255-6665 | RGhazi@dtsc.ca.gov |
| Reviewed by | *Mohinder Sandhu, PE, Branch Chief* | (916) 255-3716 | MSandhu@dtsc.ca.gov |

| Locations where References may be found: |
|---|
| *DTSC Region 2, Berkeley Office* |

**FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.**

**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION**

Interim Final 2/5/99

**RCRA Corrective Action**
**Environmental Indicator (EI) RCRIS code (CA750)**

**Migration of Contaminated Groundwater Under Control**

**Facility Name:** *Noranda aka Xstrata Recycling*

**Facility Address:** *1695 Monterey Highway, San Jose, CA*

**Facility EPA ID #:** *CAD069124717*

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

| | |
|---|---|
| *X* | If yes - check here and continue with #2 below. |
| | If no - re-evaluate existing data, or |
| | If data are not available skip to #6 and enter "IN" (more information needed) status code. |

## BACKGROUND

### Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

### Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

### Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives, which are currently being used as Program measures for the Government Performance and Results Act of 1993, (GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated groundwater and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

### Duration / Applicability of EI Determinations

EI Determination status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

| | |
|---|---|
| | If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation. |
| *X* | If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated." |
| | If unknown - skip to #8 and enter "IN" status code. |

*There was a release of Cyanide containing rain water to soil on October 29, 1981(SWMU 8). Approximately 230 cubic yards of soil were removed and taken to the Kettleman Hills TSD in February and March of 1982 under the oversight of RWQCB. Seven ground water monitoring wells were constructed and sampled. Soil and ground water samples showed only trace amounts of Cyanide. The RWQCB closed the case with no further action. Contaminants in ground water were trace amounts of Cyanide and metals. The RWQCB could not identify a ground water contaminant plume during the ground water investigation. The gradient direction was determined to be in the northwesterly direction. There are currently no monitoring wells in current network. All seven previously constructed ground water monitoring wells were abandoned by the RWQCB. The ground water table depth is approximately 45 feet bgs. Ground water is not now contaminated from operations of this facility. A ground water risk assessment is contained in the CMS, Micro Metallics Corporation, San Jose, California, February 6, 1998. The last ground water monitoring report was dated August 12, 1991. No additional ground water remedy was required by DTSC or the RWQCB. No land use covenant was required.*

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

| | |
|---|---|
| | If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2]). |
| | If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation. |
| | If unknown - skip to #8 and enter "IN" status code. |

Rationale and Reference(s):

References

[2] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

| | |
|---|---|
| | If yes - continue after identifying potentially affected surface water bodies. |
| | If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies. |
| | If unknown - skip to #8 and enter "IN" status code. |

Rationale and Reference(s):

References

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

| | |
|---|---|
| | If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgment/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system. |
| | If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing. |
| | If unknown - enter "IN" status code in #8. |

Rationale and Reference(s):

References

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

| | |
|---|---|
| | If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination. |
| | If no - (the discharge of "contaminated" groundwater cannot be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems. |
| | If unknown - skip to 8 and enter "IN" status code. |

Rationale and Reference(s):

References

[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

| | |
|---|---|
| | If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination." |
| *X* | If no - enter "NO" status code in #8. |
| | If unknown - enter "IN" status code in #8. |

Rationale and Reference(s):

*The RWQCB could not identify a ground water contaminant plume during the ground water investigation. The gradient direction was determined to be in the northwesterly direction. There are currently no monitoring wells in current network. All seven previously constructed ground water monitoring wells were abandoned by the RWQCB.*

References

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

| | |
|---|---|
| *X* | YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI Determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at ***Noranda aka Xstrata Recycling, 1695 Monterey Highway, San Jose, CAD069124717***. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater." This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility. |
| | NO - Unacceptable migration of contaminated groundwater is observed or expected. |
| | IN - More information is needed to make a determination. |

| Contact Information | | | |
|---|---|---|---|
| Prepared by | *Frank Dellechaie* | (916) 255-6425 | FDellechaie@sbcglobal.net |
| Reviewed by | *Alejandro Galdamez,Project Manager* | (510) 725-5634 | AGaldame@dtsc.ca.gov |
| Reviewed by | *Alfred Wong, PE, Team Leader* | (510) 540-3946 | AWong@dtsc.ca.gov |
| Reviewed by | *Rizgar Ghazi, PE, Unit Chief* | (916) 255-6665 | RGhazi@dtsc.ca.gov |
| Reviewed by | *Mohinder Sandhu, PE, Branch Chief* | (916) 255-3716 | MSandhu@dtsc.ca.gov |

| Locations where References may be found: |
|---|
| *DTSC Region 2, Berkeley Office* |

Department of Toxic Substances Control, Brown-fields and Environmental Restoration Program
8800 Cal Center Drive, Sacramento, CA 95826

*Noranda aka Xstrata Recycling, 1695 Monterey Highway, San Jose, CAD069124717*

# CONSTRUCTION COMPLETE

**RCRA Corrective Action Assessment of CA550**
**(Remedy Construction Complete)**
**Basis for Approval**

| | HH | GW | RCC |
|---|---|---|---|
| EIs Projected | 9/30/2011 | 9/30/2011 | 9/30/2011 |

***Regulatory History*** *- Micro Metallics was granted an Interim status Document (ISD) on August 30, 1983 by DTSC. Micro Metallics submitted a notification dated October 10, 1984 to change the ownership as of October 12, 1984 from Micro Metallics Corporation, a subsidiary of Levin Metals Corporation, to Micro Metallics Corporation (a Delaware Corporation), a subsidiary of Noranda Corporation, which is a subsidiary of Noranda, Inc., an Ontario Corporation. Micro Metallics submitted a Permit Application to DTSC on July 3, 1991. DTSC cited major deficiencies to the Permit Application. A revised application was submitted in August 1992. Noranda purchased the assets of Micro Metallics Corporation in October 1984. In the agreement, Levin Metals Corporation, the prior operator of the facility, indemnified Noranda for any, liability stemming from any releases. Environmental Strategies Corporation (ESC) has been managing the corrective action on behalf of the prior operator and property owners. In 2003 Noranda re-organized its US recycling operations under the name Noranda Recycling Inc. noranda changed names to Falconbridge and then to Xstrata Copper Canada following a series of mergers and acquisitions. The Facility and business names were change to Xstrata Recycling Inc. in August of 2007 to conform with the new parent company. The facility at the time of this EI review is operating on a RCRA Permit that expired on October 30, 2004. The permit is in the process of being renewed.*

***Manufacturing Process*** *- The facility is located on approximately 2.2 acres of property in San Jose, California. The Micro Metallics facility is located in an industrial setting and the area surrounding the facility is zoned for industrial use. With the exception of a trailer park located adjacent to and west of the facility, the site is surrounded by manufacturing and commercial properties. The April 7, 1994 draft Negative Declaration, issued by DTSC, concluded that the operations at Micro Metallics facility would have no significant effect on the local population, land use, natural resources, housing, transportation, utilities, or public services.*

*Micro Metallics is a recycling facility that accepts hazardous wastes and secondary materials containing recoverable quantities of base and precious metals. Micro Metallics receives many types of materials delivered as either manifested hazardous waste or un-manifested exempt scrap materials. In both cases, the materials enter the Receiving Area and are inspected to verify classification status, container integrity, compatibility, weight/piece count, labeling and documentation. Most metal recovery operations are performed at an offsite smelter after Micro Metallics has prepared and assayed the materials. Some precious metals are recovered onsite from spent industrial solutions by means of stripping and precipitation including strip baths, plating baths, drag out solutions, and solutions. Other metals, such as lead solder dross, are also processed onsite in furnaces to recover commercially valuable base metals.*

***Permit Authority*** *- RCRA Interim Status was obtained on August 30, 1983. Permit Application was*

*made on July 3, 1991 and revised application was submitted on August 1992. The Regulated Units are currently in operation. There are no current or future redevelopment plans envisaged. An RFA was completed in June 1993. An RFI Report was approved in 1995 and 1996. The CMS Report is entitled Micro Metallics Corporation, San Jose, California, February 6, 1998. The CM Imposed/Statement of Basis process was not required by DTSC.*

***Documented Releases** - There was a release of cyanide containing rain water to soil on October 29, 1981(SWMU 8). Approximately 230 cubic yards of soil were removed and taken to the Kettleman Hills TSD in February and March of 1982 under the oversight of RWQCB (File No. 2/89.8112). Seven groundwater monitoring wells were constructed and sampled. Soil and groundwater samples showed only trace amounts of cyanide. The RWQCB closed the case with no further action. The key final site wide soil contamination Report is entitled the CMS, Micro Metallics Corporation, San Jose, California, February 6, 1998. A Soil Risk assessment was conducted and is in the CMS, Micro Metallics Corporation, San Jose, California, February 6, 1998.*

***Current Soil and Groundwater Conditions** - In 1995 and 1996, an RFI was conducted at the facility to meet the requirements of the hazardous waste facility permit issued to Micro Metallics by DTSC. During the RFI, metals and cyanide were detected at shallow levels in eleven SWMUs at concentrations above background levels. Consequentially, DTSC requested that Micro Metallics conduct a Corrective Measures Study (CMS) for the site. The bulk of the CMS consisted of a human health risk assessment. The risk assessment included a screening-level risk assessment and a site-specific risk assessment for areas of the site where potential health risks were identified during the screening-level phase. The screening-level risk assessment was conducted using DTSC Preliminary Endangerment Assessment guidance document and indicated that SWMUs 1, 9, 10, 11, 12, and 13 would not pose health risks even in the unlikely event that the site was converted to residential use. A more detailed, site-specific analysis of risks associated with chemical residuals at the other SWMUs (SWMUs 2, 3, 5, 7, and 14) indicated that direct exposure to chemicals of concern by industrial receptors under current site use conditions would not present excessive risks to health. Less conservative estimates of residential exposure parameters indicated that even residential use of the site was unlikely to present excessive risks. Only a single sample containing hexavalent chromium in SWMU-2 exceeded target cancer risks in an unlimited site use scenario. The contaminants of concern were cyanide and metals (Au, Ag, Cu, Pb, and Zn).*

*Contaminants in groundwater were trace amounts of cyanide and metals. There were no groundwater contaminant plumes identified in the RFI. The gradient direction is northwesterly. There are no groundwater monitoring wells now installed or operating. All seven wells were abandoned by the RWQCB. The depth to the groundwater table is approximately 45 feet bgs. Studies concluded that groundwater is not now contaminated from operations of this facility. There is no groundwater monitoring schedule currently required. A groundwater risk assessment is included in the CMS, Micro Metallics Corporation, San Jose, California, February 6, 1998. The last Groundwater Monitoring Report is dated August 12, 1991 and there is no groundwater remedy required. There is no Land Use Covenant in place. As such, it is deemed that this operating RCRA TSD has met the Remedy Construction Complete Environmental Indicator.*

***Surface Water** - The Micro Metallics facility is located between the Guadalupe River and Coyote Creek drainage courses that flow northwest and discharge into the southern reaches of the San Francisco Bay. The Guadalupe River is located approximately 0.9 mile southwest of the site, Coyote Creek is approximately 1.1 miles northeast of the site, and San Francisco Bay is approximately 11.6 miles northwest of the site. The Micro Metallics facility is located within a l00-year floodplain.*

***Geology and Hydrogeology** – Micro Metallics is located in the southeastern margin of the fore bay hydro-stratigraphic unit in the Santa Clara Valley Groundwater Basin. Basin sediments consist of relatively young (Pleistocene to Recent) unconsolidated alluvial deposits (clay, silt, sand, and gravel)*

*underlain at depth by the older (Plio-Pleistocene) poorly consolidated to consolidated alluvial deposits of the Santa Clara Formation. The thickness of the alluvium increases away from the bounding mountainous areas toward the center of the valley. In this area, groundwater flows under unconfined water conditions through coarse aquifer materials (sand and gravel). The saturated sand and gravel deposits are separated by discontinuous leaky aquitards consisting predominately of fine silt and clay sediments. The presence of silt and clay layers in the unsaturated zone may contribute to the formation of temporary perched water horizons during periods of high surficial recharge. The subsurface materials at the site have been divided into three zones. Zone A extends to a depth of approximately 50 feet below the ground surface and is composed of clay and silty clay with occasional lenses of silt, silty sand, and sand. Zone A is a poor water-bearing layer and may represent a former perched water horizon. Zone B extends from 50 to 75 feet below the ground surface, consisting of sand and sandy gravel, and representing the primary shallow water-bearing unit. Zone C extends from 75 to 105 feet below the ground surface and consists of clayey gravel and sand. The depth to shallowest groundwater in Zone A is approximately 30 feet. Not enough wells were installed in the deeper zones to determine the groundwater flow direction in these units.*

***Summary of the RCRA Facility Assessment, Micro Metallics Corporation, 1695 Monterey Highway San Jose, California, Department of Toxic Substances Control, Region 2, Berkeley, June 1993.***

*A Visual site Inspection (VSI) was conducted on March 12, 1993. Fifteen SWMUs and one AOC were identified during the RFA at the site. Twelve of these SWMUs and one AOC had been closed and/or relocated. Individual Closure Plans were not submitted for the following: SWMUs 1 through 3; and SWMUs No. 5, 7(A&B), 9, 10, 11, 12, 13, 14, and AOC-I. These units were recommended for further characterization in an RFI. No further investigation was recommended for SWMUs No. 4, 6, and 8, that were determined to have no or low potential for releases into the, sub-soils or groundwater.*

*ABOVE GROUND STORAGE AND/OR TREATMENT TANKS*

***SWMU 1** - Former site of six (6) cyanide processing tanks - A total of thirteen cyanide process tanks had been located in the cyanide stripping Room. Currently there are only seven tanks in this room. The Stripping Room operation was established in the early 1970's. The exact location of the removed tanks was not available. The approximate locations of these tanks are determined by the existing relative blanked off branches of the ventilation system ducts of the stripping room. The six removed cyanide processing tanks are believed to be similar in construction to the existing tanks in operation. The construction materials were polyethylene and/or fiberglass. The capacities of the tanks ranged from 40 gallons to 450 gallons. Cyanide solutions are similar to the wastes currently managed. The solutions typically have a pH of 11 to 14, and a cyanide content of 10,000 to 30,000 ppm. Major metals include copper, silver, zinc, nickel and lead.*

***SWMU 2** - This is the former site of four (4) above ground waste tanks. A total of eight cyanide waste tanks were located at this site. Currently there are only four tanks. Two tanks were removed in 1982. The other two tanks were removed in 1986. The containment structure currently in use, was renovated and was built on the site of the removed tanks. The capacity of the two tanks that were removed in 1982, are estimated to be 3,000 and 7,500 gallons respectively. The other two tanks which were removed in 1986, are a match set to the existing cyanide waste tanks currently in use, and have a capacity of 1,900 gallons each. Major metals include copper, silver, zinc, nickel, and lead. The waste solutions are regulated as RCRA waste. Outgoing waste solutions were transported to an offsite facility for treatment and/or disposal.*

***SWMU 3** - This is the former site of above ground acid waste tank in the acid waste tank farm. Currently there is only one above ground acid waste tank having a capacity of 2500 gallons. This tank replaced the old one, and was built on the same site. The capacity of the old tank was approximately 5000 gallons. This tank was removed in 1984. The current containment structure and the existing tank were built and*

*installed just after removing the old tank. Acid and neutral aqueous wastes are similar to the wastes currently managed. The waste solutions are regulated as RCRA wastes. Outgoing waste solutions were transported to an offsite facility for treatment and/or disposal.*

*CONTAINER STORAGE AREAS*

***SWMU 4** - This is the former site of discontinued scrap metal storage. Portions of the yard and parts of the processing area were used prior to 1987 to store scrap metals. Ferrous and non-ferrous scrap metals were stored in the yard and in various locations throughout the facility, due to the inert characteristics of scrap metals. Large portions of the yard were unpaved. Scrap metals including plates, bars, anodes, turnings and punchings, also various types of containers including pallets, boxes, drums and bags were stored prior to 1987 in different areas of the facility. Scrap metals are defined as solid wastes.*

***SWMU 5** - This is the former site of discontinued cyanide and acid wastes storage in the yard located in portions of the yard. During the 70's, the storage of cyanide sludge and acid wastes took place in different undesignated areas of the yard and in the waste processing area. At one time, up to 300 drums of cyanide wastes were stored in the yard near the current location of the propane tank. As noted in the inspection conducted by DTSC in October, 1987 cyanide waste and acid wastes were identified at other locations outside of the designated storage areas. Cyanide wastes and acid wastes used to be stored in drums and/or containers in different areas. Waste cyanide sludges and acid wastes similar to solutions currently used were being handled. The wastes are currently regulated as RCRA wastes. Incoming wastes were treated onsite. Outgoing waste solutions were transported to an offsite facility for treatment and/or disposal.*

***SWMU 6** - This is the former site of discontinued metal-bearing solids and sludge storage located in portions of the warehouse. Containerized acid wastes were stored in the warehouse in 1984 and 1985 during the interim period between removal of the 5000 gallon storage tank and installation of the current system. The warehouse has a concrete base and is enclosed by a roof and walls. The total area of the warehouse is approximately 14,000 square feet. No waste treatment took place in these units. Wastes received by Micro Metallics such as cyanide solutions, sludge and dross were held awaiting treatment at other locations onsite. Outgoing waste acid solutions awaiting shipment to an offsite TSDF were also stored in the warehouse. The wastes are currently regulated as RCRA hazardous waste.*

***SWMU 7A** - This is the former site of waste oil storage at the dismantled maintenance shed located in the area between the cyanide waste tank farm and tray furnaces. This area was a part of the outside cyanide processing operation which was discontinued. Unauthorized storage of waste oil was identified during an inspection conducted by DTSC in October 1987. This area had a concrete floor and a shed structure for a roof. The structure was dismantled in 1988. Containers of waste oil are regulated as a California hazardous waste.*

***SWMU 7B** - This is the former site of the discontinued outside cyanide stripping and electroplating process located in the area between the cyanide waste tank and tray furnaces. A cyanide stripping and electroplating operation was previously located in an area between the cyanide tank farm and tray furnace processing area. Cyanide processing in the yard area was discontinued in the early 1980s. Seven wells were installed between 1982 and 1986 to determine the extent of contamination. An additional monitoring well was installed in the spill area in August 1991. Soil samples were collected at three feet, five feet, and at subsequent five foot intervals to a depth of 75 feet. In addition, groundwater samples were collected from the new monitoring well and from three existing monitoring wells. The soil and groundwater samples were analyzed for free and total cyanide. The results of the soil sampling indicated that the soils where the spill occurred, contained trace levels of total cyanide and at those very low levels did not pose a threat to the groundwater quality in the area.*

***SWMU 9** - This is the former site of the discontinued electrolytic waste recycling operation that was*

*located in the physical processing area. An electrolytic waste recycling operation was previously located in what is now the dry processing area of the plant. Solution processing in this area was discontinued in the early 1980s and was replaced by the operations inside the refining areas at the facility. Metals were recovered by electrolysis in two rectangular tanks. The tanks held approximately 200 gallons each. Drummed waste awaiting processing for offsite disposal was stored in the immediate area of the tanks. The area has a concrete base. Photographic solutions were the predominant wastes processed in this area. No waste disposal took place in the units. Spent solutions and rinse waters were stored in drums or waste storage tanks and sent to an offsite TSDF.*

***SWMU 10** - This was the former site of the discontinued electrolytic silver refining operation (Silver Cells) that was located in the Acid storage room, in the existing refining building. An electrolytic silver refining operation was located in an area previously identified as the Silver Room in the refining area of the facility. This operation did not involve solid waste management units. However, the process cells were tan- like and the operation generated hazardous acid waste. The processing cells were removed in 1984 or 1985, and the area is now in use for storage. A stainless steel kettle was used to mix nitric acid solutions for use as an electrolyte. The kettle had a capacity of approximately 30 gallons. As many as nine electrolytic recovery cells were in use in the area. The cells were approximately 2 ft. x 2.5 ft. x 5 ft. each. The process cells typically held 15 to 20 gallons of electrolyte. Spent acid was stored in a waste acid tank in the yard area prior to disposal at an offsite facility.*

***SWMU 11** - This is the former site of crucible furnaces E & F. A total of six crucible furnaces were located on this site. Currently there are only four, A through D. A fifth and sixth furnace, identified as the "E" and "F" furnaces, were removed from the Crucible Furnace Area. The "E" and "F" crucible furnaces which were removed from service were of construction similar to the crucible furnaces currently in use at Micro Metallics. Each furnace consists of a steel shell lined with a refractory material, and a refractory crucible into which the material to be treated is placed. The furnaces are gas fired and waste material is melted in batches. The "E" and "F" crucible furnaces had a capacity of approximately 200 lbs each. All of the materials processed in the furnaces would be expected to contain hazardous metals.*

***SWMU 14** - This was the discontinued process sump, which was previously used to collect run-off from the yard area where the outside cyanide stripping process was located behind the tray furnace baghouse. A storm water sump was used to collect run-off from the yard area north of the tray furnace area and outdoor cyanide operation. The tray furnace operation remains in service but has since been covered with a roof. The outdoor cyanide operation was discontinued in the early 1980s as discussed above. The sump holds approximately 700 gallons and has dimensions of 4 ft. x 4 ft. x 6 ft. The sump is concrete and is located behind the Tray Furnace Processing Area on the northern boundary of the facility. The water collected in the sump was water containing some cyanide, copper, silver, nickel, lead, and other metals. The wastewater was presumed to contain regulated levels of cyanides and metals due to the nature of the operations in the area drained. No waste disposal took place in the unit(s). The water collected in the unit was placed in the cyanide waste storage tanks and sent to an offsite TSDF.*

***AOC 1** - This was the former site of discontinued reagent grade acids (hydrochloric and nitric) storage tanks located in the acid storage room in the refining building. In 1970, Micro Metallics had contracted with an acid distributor to supply hydrochloric and nitric acids for their operations. The supplier provided two tanks for storage at the site, as part of the service. This service was discontinued in September 1992. Currently, acid reagents are purchased and stored in containers up to 55 gallons in the refining building. The two tanks were horizontally mounted on steel supports inside a coated concrete berm, inside the existing acid storage room. The hydrochloric acid storage tank was rubber lined steel tank having a capacity of 225 gallons. The nitric acid storage tank was cylindrical stainless steel tank having a capacity of 225 gallons. The tanker truck used to pump reagent acids into the storage tanks at the facility was also provided by the acid distributor. Reagent grade hydrochloric and nitric acids were handled.*

***RFA Conclusions*** *- The entire site was either enclosed within a building or partially covered with a steel structure and paved with asphalt and concrete. The storage yards and the loading/unloading areas are also paved with concrete or asphalt. The indoor floors are well maintained with no cracks or open drains. There were low or no potential for releases to the sub-soils from the operations because the storage and processing activities are conducted inside the building.*

***RFA Recommendations*** *- Twelve of these SWMUs and one AOC had been closed and/or relocated. SWMUs Nos. 1 through 3, and SWMUs Nos. 5, 7 (A&B), 9, 10, 11, 12, 13, 14 and their partial closures were conducted without DTSC approved closure plans. No further investigation was recommended for SWMUs Nos. 4, 6, 8 which were determined to have no or low potential for releases into the sub-soils or groundwater.*

***Summary of the Corrective Measures Study Report Micro Metallics Corporation San Jose, California, Environmental Strategies Corporation, February 6, 1998***

***Summary of Pre-RFI Investigations*** *- The only pre-RFI environmental data is associated with the remediation of soil affected by rainwater containing cyanide in October 1981. This event and the subsequent investigation and remediation were identified as SWMU-8 by DTSC. The complete summary of the soil and groundwater sampling results for the spill area were presented in the September 30, 1991, report titled "Supplemental Site Investigation for Micro Metallics". Based on the data presented in the 1991 report, no further action for SWMU-8 was required by DTSC, and SWMU-8 (along with SWMU-4 and SWMU-6) was excluded from the HRA.*

***Summary of the RFI*** *- The RFI was conducted in June 1995 and June 1996 to meet the requirements of the hazardous waste facility permit issued to Micro Metallics by DTSC. The RFI involved the collection and analysis of shallow soil samples (maximum depth of seven feet) from 11 SWMUs and one AOC at the site. Background soil samples were also collected from onsite and offsite locations. The samples were analyzed for California Assessment Manual (CAM) metals, cyanide, and pH. Selected samples were also analyzed for hexavalent chromium. Three samples from SWMU-7 were analyzed for total petroleum hydrocarbons (TPH) as gasoline and diesel. No TPH was detected in any of the samples collected from SWMU-7.*

*Data Evaluation Criteria For metals (except chromium VI) and cyanide, a screening process was developed to systematically evaluate the sampling results from each SWMU and the AOC. Soil screening levels were derived using a statistical analysis of a set of background samples. The background data set consisted of two background samples collected during the initial RFI. Twenty supplemental background samples were collected on the Micro Metallics property and 17 background samples from the investigation of the nearby Lorentz Barrel and Drum site. For each constituent of concern, the mean and standard deviation were calculated. Background screening levels were then calculated by adding two times the sample standard deviation to the mean concentration for each constituent. Background screening level refers to the clean background concentration plus two sample standard deviations. The background samples were not analyzed for chromium VI. However, for the CMS, chromium VI was assumed that the background concentration of zero, hence, any detectable level of chromium VI was considered significant. No SWMU or AOC samples exhibited a pH less than 7.3.*

***SWMU 1*** *- Only two constituents, cyanide (1.7 mg/kg) and silver (6.5 mg/kg) were detected at levels exceeding background screening levels. No samples from this area had a pH greater than 8.5.*

***SWMU 2*** *- Former Site of Four Aboveground Waste Tanks - Two borings (A and B) were drilled in this area adjacent to the western wall of the existing containment structure and within the former containment pad for the removed tanks. Eight metals and cyanide were detected at concentrations above background screening levels in one or more samples from this SWMU: cadmium (7.5 mg/kg), chromium (1,190 mg/kg), cobalt (171.1 mg/kg), copper (135 mg/kg), cyanide (33.1 mg/kg), molybdenum (31.8 mg/kg),*

*nickel (320 mg/kg), silver (5.3 mg/kg), and zinc (1,870 mg/kg). Chromium VI was detected at a maximum concentration of 126 mg/kg.*

***SWMU 3** - Former Site of an Old Acid Waste Tank - Background screening levels for the following metals were exceeded in one or more samples from this area: barium (538 mglkg), cadmium (10.3 mglkg), chromium (526 mglkg), cobalt (53.9 mglkg), copper (544 mglkg), nickel (1,190 mglkg), selenium (2.7 mglkg), silver (4.5mglkg), thallium (2.5 mglkg), and vanadium (115 mglkg). No pH values were measured above 8.5 in any of the samples.*

***SWMU 5** - Former Site of Discontinued Cyanide and Acid Wastes Storage in the Yard - Three borings, A, B, and C were installed in this former drum storage area. Cadmium (47.6 mglkg), chromium (278 mglkg), copper (1,640 mglkg), cyanide (63.8 mglkg), mercury (3.6 mglkg), molybdenum (5.2 mglkg), silver (161 mglkg), and zinc (937 mglkg) were detected at concentrations exceeding background screening levels in one or more samples from this unit. Chromium VI was detected in one sample at a concentration of 0.38 mglkg.*

***SWMUs 7A and 7B** - Former Site of Waste Oil Storage at the Dismantled Maintenance Shed and Former site of Discontinued Cyanide Stripping Process - Three borings were taken from this area (A, B, and C). Samples from all three borings were used to evaluate possible releases from petroleum storage and cyanide stripping operations. Potential petroleum releases associated with SWMU 7 A were evaluated by analyzing the 2.0 to 2.5 foot depth sample from each boring (A, B, and C) for TPH as gasoline and diesel. There was no visible evidence of contaminants and no TPH was detected in any of the samples. Therefore, there was no indication of any releases related to oil storage in SWMU 7. Antimony (8.8 mg/kg), barium (665 mg/kg), cadmium (20.2 mg/kg) , chromium (214 mg/kg), copper (767 mg/kg), cyanide (28.5 mg/kg), mercury (1.4 mg/kg), molybdenum (13.8 mg/kg), and silver (329 mg/kg) were detected at concentrations exceeding background screening levels in one or more samples from SWMU 7A and SWMU 7B. Chromium VI was detected in one sample at a concentration of 0.2 mg/kg.*

***SWMU 9** - Former Site of the Discontinued Electrolytic Waste Recycling Operation - Two borings were drilled in this SWMU, one each in the eastern (A) and western (B) sides of this area. Barium (677 mg/kg), cadmium (4.9 mg/kg), cobalt (37.7 mg/kg) , and vanadium (93.2 mg/kg) were detected at levels exceeding background concentrations in one or more samples from this unit. No pH value above 8.5 was measured in any of the samples.*

***SWMU 10** - Former Site of the Discontinued Electrolytic Silver Refining Operation - SWMU 10, a former electrolytic silver refining operation, was previously located in the current Acid Waste Storage Room Solutions containing acids and metals that were used in this operation. Copper (100 mg/kg) was detected at a concentration exceeding its background screening level in one sample from SWMU 10. No pH value above 8.5 was measured in any of the samples.*

***SWMU 11** - Former Site of Crucible Furnaces Number "E" & "F" in Crucible Furnaces Area - One boring (A) was drilled at this location, directly beneath the former crucible furnace locations. One sample contained cadmium (4.8 mg/kg), cobalt (35.9 mg/kg), and vanadium (87.8 mg/kg) at concentrations above the background screening levels.*

***SWMU 12** - Former Site of Sludge Dryer - One boring (A) was drilled at this location, beneath a sealed vent pipe that was formerly connected to the sludge dryer. Cadmium (9 mg/kg), cobalt (31.4 mg/kg), mercury (1.7 mg/kg) and molybdenum (2.4 mg/kg) were detected in one sample at concentrations exceeding background screening levels.*

***SWMU 13** - Former Site of Two crucible Furnaces - One boring (A) was drilled in the office beneath the former furnace location. Silver (2.9 mg/kg) was detected at a concentration exceeding its background screening level in one sample from SWMU 13.*

***SWMU 14** - Discontinued Process Sump - One boring (A) was taken immediately adjacent to the sump*

*because the sump itself was inaccessible for coring and sampling equipment. Samples used to evaluate this SWMU were collected from four to six feet in depth rather than from the surface, because scenarios for a release from this SWMU could include leakage from the sides or bottom of the sump. Barium (611 mg/kg), cadmium (4.4 mg/kg), copper (456 mg/kg), cyanide (13.2 mg/kg), silver (101 mg/kg) and thallium (3.0 mg/kg) were detected in one or more samples at concentrations above background screening levels.*

***AOC 1** - Former Site of Discontinued Reagent Grade Acid Storage Tanks - One boring (A) was drilled at this location. No constituents were detected at concentrations exceeding background screening levels in the sample collected in this area.*

***Exposure of Chemicals to Soil Media** - The RFI soil sampling results indicated that 11 SWMUs at the Micro Metallics facility contain metals or cyanide at concentrations above background levels including: selenium, thallium and vanadium in SWMU 3, and chromium VI. The Micro Metallics facility is located in an industrial setting and the area surrounding the facility is zoned for industrial use. As indicated in the draft Negative Declaration prepared for Micro Metallics by DTSC, the City of San Jose reports that the facility is consistent with the existing zoning. With the exception of a trailer park located adjacent to and west of the facility, the site is surrounded by manufacturing and commercial properties. Site access is limited by a chain-link fence that surrounds the site. Because facility operations involve, in part, the recovery of precious metals such as gold, strict security measures are followed to prevent unauthorized access to the facility. Consequently, contact with site soil by trespassers is unlikely. Contact with chemicals in site soil is also unlikely for onsite workers, because these soils are covered by buildings and/or pavement. Under these conditions, contact with chemicals in soil could occur only if activities exposing subsurface soil (e.g., utility installation) area performed, or if any future site use required removal of existing structures.*

***Exposure of Chemicals to Groundwater Media** - Based on Santa Clara Valley Water District (SCVWD) records, 36 groundwater supply wells are located within a one-mile radius of Micro Metallics facility. The wells are used to supply industrial process water, irrigation water, and drinking water. According to the SCVWD, all active water wells in the area are screened at a depth of 150 feet or greater. Concentrations of chemicals in soil at the Micro Metallics facility attenuate rapidly with depth. The site is paved with a concrete slab and asphalt, which limits the potential for rainwater to infiltrate soil, contact chemicals in soil, and leach chemicals to groundwater. Groundwater at the site is first encountered at a depth of 30 feet below ground surface, but water wells are screened at depths exceeding 150 feet. In order to impact usable groundwater supplies, chemicals would have to migrate from shallow soil through shallow aquifers to much deeper water-bearing units, and migrate laterally to existing wells. The potential for chemical migration to occur in leachate and groundwater is limited by the presence of buildings and/or pavement at the site. The potential for exposure to chemicals in groundwater is not likely under current conditions.*

***Exposure of Chemicals to Surface Water Media** – Micro Metallics is located within a 100-year floodplain in the Santa Clara Valley. According to the SCVWD, a 100-year flood would peak at an elevation of approximately 104 feet above mean sea level (msl). Because the facility is located at an elevation of approximately 110 feet above msl, the risk of flooding at the site is considered minor.*

***Ecological Exposure** - There are no sensitive habitats within one mile of Micro Metallics facility and no unique, rare, or endangered species exist at or near the site. Fencing surrounds the entire facility, preventing animals from entering the facility. Site chemicals are not expected to migrate to surface water bodies, and therefore, the site is unlikely to adversely affect aquatic organisms. The site is considered unlikely to pose a risk to the local ecosystem.*

***Summary and Conclusions** - SWMUs 1, 9, 10, 11, 12, and 13 would not pose significant health risks even in the unlikely event that the site were converted for residential use. The screening-level risk assessment did show that a potential for health-based risks was possible on an approximately 0.5 acre*

*portion of the site around SWMUs 2, 3, 5, 7 and 14. A more detailed analysis of risks associated with chemical residuals at SWMUs 2, 3, 5, 7, and 14, was performed. Potential exposure and risks estimated for utility and construction workers are insignificant. Only hypothetical exposure to chromium VI in a single sample at maximum concentration from SWMU-2 posed a theoretical risk (2E-06) that was above the target risk level of 1E-06. A reevaluation of residential risks by evaluating the non-cancer toxicity endpoints of the chemicals of concern indicated that direct contact exposure by residential receptors was also unlikely to be a concern at these SWMUs. Additional analysis of the potential for risks associated with inhalation exposure at the site under a residential use scenario also indicated that risks are below target residential risk levels for inhalation. Only chromium VI in the single sample at maximum concentration from SWMU-2 presented an excess cancer risk. Other samples from this SWMU had considerably lower chromium VI concentrations.*

*The location of the residual chemicals (metals and cyanide) at the Micromet site are in soil beneath asphalt pavement or concrete building slabs that prevent exposure to these materials under current and future conditions. Only one isolated sampling location in SWMU 2 consistently presented hypothetical risks to human health, assuming that subsurface soil underneath pavement could be exposed and regularly contacted. Consequently, remedial action was deemed not warranted for the site because there are no near term risks to human health under current site conditions. Institutional and engineering controls will limit contact with subsurface soils and further ensure that the conditions at the site do not present risks to human health. None of the constituents identified during the RFI were detected at levels exceeding the Total Threshold Limit Concentration (TTLC) values. Each SWMU at the site is covered by a building or asphalt, hence, the soils at the site are effectively capped under present conditions. By maintaining the existing conditions at the site, a single-layer cap eliminates potential exposure to chemicals in soils beneath the site.*

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